REMARKS

The Office Action dated December 16, 2004 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto. Claims 8-18 are pending in the present application. No new matter is presented and no new issues are raised which require further consideration and/or search. Therefore, claims 8-18 are respectfully submitted for consideration.

As a preliminary matter, Applicants' representative wishes to thank the Examiner for granting an interview to discuss the Office Action.

Claims 8-9, 11-16 and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,313,467 to Varghese in view of the admitted prior art (APA). The rejection is traversed as being based on references that neither teach nor suggest the novel combination of features clearly recited in independent claim 8.

Claim 8, upon which claims 9-12 depend, recites a network element for a telecommunications network. The network element includes a first interface unit for receiving standard PCM signals in the network element and multiplexing means for multiplexing the PCM signals on a time-division basis into a transmission frame. The total capacity of a payload portion of the frame essentially corresponds to the capacity of N PCM signals. The multiplexing means are provided with configuring and allocating means for dividing the total capacity of the payload portion between at least two parts of variable capacity. Each part is configured to be allocated a desired portion of the total

capacity of the payload portion in accordance with the current transmission requirement, and for allocating a part with the desired capacity to at least one traffic source from a group in which a number of PCM signals constitutes a first traffic source and a number of packet data streams constitutes a second traffic source. The network element also includes a second interface unit for receiving a packet data stream. The second interface unit includes rate adaptation means for adapting bit rate of the packet data stream to correspond to the capacity of the payload portion allocated to the packet stream. The output of the rate adaptation means being directly connected to said multiplexing means. The standard PCM signals include first level signals in a Plesiochronous Digital Hierarchy.

Claim 13 recites a network element for a telecommunications network configured to receive standard PCM signals in a first interface unit of the network element and to multiplex thePCM signals on a time-division basis into a transmission frame. The total capacity of the payload portion of the frame essentially corresponds to the capacity of N PCM signals. The multiplexing means are configured to divide the total capacity of the payload portion between at least two parts of variable capacity. Each part is configured to be allocated a desired portion of the total capacity of the payload portion in accordance with the current transmission requirement, and to allocate a part with the desired capacity to at least one traffic source from a group in which a number of PCM signals constitutes a first traffic source and a number of packet data streams constitutes a second traffic source. The network element is also configured to receive a packet data stream in a

second interface unit of the network element. The second interface unit configured to adapt the bit rate of the packet data stream to correspond to the capacity of the payload portion allocated to the packet stream directly before multiplexing. The standard PCM signals comprise first level signals in a Plesiochronous Digital Hierarchy.

Claims 14, upon which claims 15-18 depend, recite a method for multiplexing in a telecommunications network. The method includes receiving standard PCM signals in a first interface unit of the network element. The standard PCM signals being first level signals in a Plesiochronous Digital Hierarchy. The method also includes multiplexing the PCM signals on a time-division basis into a transmission frame, the total capacity of the payload portion of the frame essentially corresponding to the capacity of N PCM signals. The method further includes dividing the total capacity of the payload portion between at least two parts of variable capacity. Each part is allocated a desired portion of the total capacity of the payload portion in accordance with the current transmission requirement. The method also includes allocating a part with the desired capacity to at least one traffic source from a group in which a number of PCM signals constitutes a first traffic source and a number of packet data streams constitute a second traffic source and receiving a packet data stream in a second interface unit of the network element. The second interface unit adapting bit rate of the packet data stream to correspond to the capacity of the payload portion allocated to the packet stream directly before multiplexing.

As outlined below, Applicants submit that the cited reference of Varghese, when taken alone or when combined with the APA, do not teach or suggest the elements of claim 8.

Varghese teaches a system with a link that carries multiple types of information signals in a frame. Two integrated link controllers are coupled to the ends of the link. Each information signal occupies an allocated amount of bandwidth in a portion of each frame. The system has means for dynamically changing the allocation of the bandwidth of the information signals. The bandwidth of each information signal is allocatable among contiguous or noncontiguous portions of the frame.

The Office Action alleges that Fig. 1, Ref, 12 of Varghese discloses a first interface unit and that the APA discloses the second interface unit as recited in claims 8, 13 and 14. Applicants submit that the combination of the cited prior art references does not teach of suggest the combination of elements recited in claims 8, 13 and 14. The invention as claimed in claims 8, 13 and 14 recite, in part, a first interface unit for receiving standard PCM signals and multiplexing means for multiplexing the PCM singles into a transmission frame, the total capacity of a payload portion of the frame corresponding to the capacity of N PCM signals, wherein the standard PCM signals comprises first level signals in a Plesiochronous Digital Hierarchy. Upon review of Varghese, Applicants note that figure 2, reference 12 instead of figure 1, reference 12 allegedly shows an interface. According to the Office Action, figure 2, reference 12 allegedly shows an interface for receiving standard PCM signals and for multiplexing the

PCM signals from a first source and packet stream signals from a second source into a payload of a frame wherein the payload corresponds with the PCM signals from the first source.

As explained on page 5, lines 15-16 of the present application, the PCM signal received in the first interface unit denotes a first level signal in a Plesiochronous Digital Hierarchy (PDH) hierarchy. As such, the first level signals are multiplexed into a transmission frame. Furthermore, as explained at least on page 1 lines 21-23 and 26-29, the first level signal may be an E1 signal or a T1 signal. An upper hierarchy level system is constructed by multiplexing a number of lower level signals. In Varghese, signals received in PBX 24A originate from telephone units 26A-26D, which are single telephone units. Therefore, the signals coming into PBX 24A represents a number of 64 kbit/s signals, which are combined into a single T-carrier signal. See for example, Figure 7a of Varghese. Applicants submit that the single T-carrier signal corresponds to a single PCM signal of the present invention. Furthermore, Col. 7, lines 57-59 of Varghese states that "the T-carrier interface 58 is coupled to the voice channels of PBX 24A in a conventional manner." In Varghese, the link between the devices is a T1 link, wherein T1 is the lowest level signal in PCM hierarchy. The transmission line TL of the present invention is a PDH link, which includes a multiplexed number N of PCM signals. Therefore, Applicants submit that Varghese does not teach or suggest a first interface unit for receiving standard PCM signal and multiplexing means for multiplexing the PCM singles into a transmission frame, the total capacity of a payload portion of the frame

corresponding to the capacity of N PCM signals, wherein the standard PCM signals comprises first level signals in a Plesiochronous Digital Hierarchy as recited in claims 8, 13 and 14.

The Office Action further alleges that figure 4 of Varghese shows a multiplexer configured to divide the payload into two parts having a variable capacity based on the current transmission required of the PCM signals, wherein a part is used to carry PCM signals and the other part is used to carry packet data stream. However, upon review, figure 4 of Varghese shows a single T1 frame structure, thus corresponding to a single PCM signal. This clearly shows the difference in hierarchy levels between Varghese and the present invention. In Varghese, the data is multiplexed within a single T1 frame. In the present invention, on the other hand, multiple PCM signals are multiplexed, i.e., multiples T1 frames or E1 frames. Hence, Applicants further submit that Varghese does not teach or suggest the multiplexer as recited in claim 8.

The Office Action further refers to figure 3 of the present application as APA and alleges that the APA discloses a rate adaptation for receiving the packet data stream and direct input of them into the multiplexer. Applicants submit that figure 3 of the present application shows a rate adaptation for receiving the packet stream and inputting the packet stream into an inverse multiplexer (I-MUX). Also see page 3, lines 11-26 of the present application. As explained in the background and summary sections of the present application, avoiding the inverse multiplexing is an objective of the present invention. Furthermore, there is no teaching or motivation in the cited reference or the APA of

combining the rate adaptation means, of the APA, with the multiplexer of the cited reference. The only teaching of such combination can be found in the present invention.

The present invention thus relates to higher hierarchy level than the cited references. As outlined above, the present invention recites multiplexing N PCM signals (N E1 / N T1). This provides advantages over the system of Varghese. For example, having a total capacity of multiple PCM signal (N PCM signals) provides much more transmission capacity than multiplexing traffic into a single T1 or PCM signal. Based on the arguments outlined above, Applicants respectfully assert that the rejection under 35 U.S.C. §103(a) should be withdrawn because neither Varghese nor the admitted prior art, whether taken singly or combined, teaches or suggests each feature of claims 8, 13 and 14 and hence, dependent claims 9, 11-12, 15-16 and 18 thereon.

Claims 8-9, 11-16 and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,761,781 to Calvignac in view of the admitted prior art (APA). The rejection is traversed as being based on references that neither teach nor suggest the novel combination of features clearly recited in independent claims 8, 13 and 14.

Calvignac teaches a dynamic allocation of bandwidth to circuit or packet traffic according to user activity. Circuit switched information corresponding to a synchronous traffic and packet switched information corresponding to asynchronous traffic are exchanged between nodes connected through a medium link. A succession of frames is configured in a transmitting adapter of a network node, each frame being made of a

succession of subframes containing bits. A part of the bits are allocated to circuit switched bit slots and remaining bits are used to carry asynchronous packet bits.

As outlined below, Applicants submit that the cited reference Calvignag, when taken alone or when combined with the APA, do not teach or suggest the elements of claim 8.

The Office Action alleges that Calvignag discloses a first interface unit and that the APA discloses the second interface unit as recited in claims 8, 13 and 14. Applicants submit that the combination of the cited prior art references does not teach of suggest the combination of elements recited in claims 8, 13 and 14. As noted above, claims 8, 13 and 14 recite, in part, a first interface unit for receiving standard PCM signal and multiplexing means for multiplexing the PCM singles into a transmission frame, the total capacity of a payload portion of the frame corresponding to the capacity of N PCM signals, wherein the standard PCM signals comprises first level signals in a Plesiochronous Digital Hierarchy. Calvignag, on the other hand, discloses allocating frame capacity to different purposes than the claimed invention as recited in claim 8. Although Calvignag does not specifically name E1 or T1 frames, it is clear from at least Col. 5 lines 28-30 of Calvignag where there is a discussion of a link speed lower than or equal to 2.048 megabits per second that Calvignag correspond to a standard E1 link. Applicants submit that the cited references disclose multiplexing data from various sources into time slots of a single PCM frame. The multiplexing of the cited reference relates to a lower hierarchy level than the present invention in which a number of PCM signals are multiplexed into a

transmission frame. Therefore, Applicants submit that Calvignan does not teach or suggest a first interface unit for receiving standard PCM signals and multiplexing means for multiplexing the PCM singles into a transmission frame, the total capacity of a payload portion of the frame corresponding to the capacity of N PCM signals wherein the standard PCM signals comprises first level signals in a Plesiochronous Digital Hierarchy as recited in claims 8, 13 and 14.

Furthermore, as discussed above, the APA does not disclose or suggest the second interface as recited in claims 8, 13 and 14. Based on the arguments outlined above, Applicants respectfully assert that the rejection under 35 U.S.C. §103(a) should be withdrawn because neither Calvignag nor the admitted prior art, whether taken singly or combined, teaches or suggests each feature of claim 8 and hence, dependent claims 9, 11-12, 15-16 and 18 thereon.

Claims 8-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,313,467 to Chopping in view of the admitted prior art (APA). The rejection is traversed as being based on references that neither teach nor suggest the novel combination of features clearly recited in independent claims 8, 13 and 14.

As outlined below, Applicants submit that the cited reference Chopping, when taken alone or when combined with the APA, do not teach or suggest the elements of claims 8, 13 and 14.

Chopping discloses a multiplex format comprising a plurality of constant bit rate time slots wherein a time slot which is not in use for constant bit rate traffic is used for

message based traffic to provide a composite constant bit rate/message based data stream. Chopping is arranged to offer a mixed capability, i.e. to carry a varying mix of 64 kbit/s circuits and ATM circuits on a single 2048 kbit/s carrier, without having to transform 64 kbit/s to ATM or ATM to 64 kbit/s.

The Office Action alleges that Chopping discloses a first interface unit and that the APA discloses the second interface unit as recited in claims 8, 13 and 14. Specifically, the Office Action refers to figure 3 of Chopping. Applicants submit that the combination of the cited prior art references does not teach of suggest the combination of elements recited in claims 8, 13 and 14. Claim 8, 13 and 14 recite, in part, a first interface unit for receiving standard PCM signals and multiplexing means for multiplexing the PCM singles into a transmission frame, the total capacity of a payload portion of the frame corresponding to the capacity of N PCM signals, wherein the standard PCM signals comprises first level signals in a Plesiochronous Digital Hierarchy. Upon review of figure 3 of Chopping, Applicants note that figure 3 shows a situation where 30 channel PCMs are transported over a single 2048 kbit/s which is equal to a E1 signal. Also see Col. 2, lines 57-59 of Chopping. As such, the discussion of Chopping is directed to mixing 64 kbit/s and ATM circuits in a single PCM (E1) carrier.

Therefore, similar to Varghese and Calvignag discussed above, Chopping discloses multiplexing data from various sources into time slots of a single PCM frame. The multiplexing of the cited reference relates to a lower hierarchy level than the present invention in which a number of PCM signals are multiplexed into a transmission frame.

Therefore, Applicants submit that Chopping, like Varghese and Calvignag, does not teach or suggest a first interface unit for receiving standard PCM signal and multiplexing means for multiplexing the PCM singles into a transmission frame, the total capacity of a payload portion of the frame corresponding to the capacity of N PCM signals, wherein the standard PCM signals comprises first level signals in a Plesiochronous Digital Hierarchy as recited in claims 8, 13 and 14.

Furthermore, as discussed above, the APA does not disclose or suggest the second interface as recited in claims 8, 13 and 14. Based on the arguments outlined above, Applicants respectfully assert that the rejection under 35 U.S.C. §103(a) should be withdrawn because neither Chopping nor the admitted prior art, whether taken singly or combined, teaches or suggests each feature of claims 8, 13 and 14 and hence, dependent claims 9-12 and 15-18 thereon.

Claims 10 and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Varghese/Calvignac and the APA as applied to claims 8 and 14 above and further in view of Chopping. The rejection is traversed as being based on references that neither teach nor suggest the novel combination of features clearly recited in independent claims 8 and 14. Claims 10 and 17 depend on claims 8 and 14 respectively and hence incorporate all of the elements of those claims. Based on the arguments outlined above, Applicants respectfully assert that the rejection under 35 U.S.C. §103(a) should be withdrawn because neither Varghese, Calvignac Chopping nor the admitted prior art, whether taken

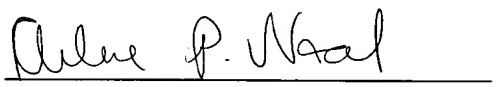
singly or combined, teaches or suggests each feature of claims 8 and 14 and hence, dependent claims 10 and 17 thereon.

As noted previously, claims 8-18 recite subject matter which is neither disclosed nor suggested in the prior art references cited in the Office Action. It is therefore respectfully requested that all of claims 8-18 be allowed and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



Arlene P. Neal
Registration No. 43,828

Customer No. 32294
SQUIRE, SANDERS & DEMPSEY LLP
14TH Floor
8000 Towers Crescent Drive
Tysons Corner, Virginia 22182-2700
Telephone: 703-720-7800
Fax: 703-720-7802

APN:mm